APPENDIX D
ECONOMIC ANALYSIS

D.1 Introduction

This report presents analyses of the costs various changes in the regulations governing the U.S. Army Corps of Engineers (Corps) nationwide permit program are likely to impose on both Corps regulatory offices and permit applicants. Corps regulatory offices issue four types of permits: standard permits, letters of permission, regional general permits, and nationwide permits.

The analysis of each alternative program is broken into three sections:

(1) Permit Shift Analysis--an examination of how the alternative program would affect the volume of nationwide permit, regional general permit, letters of permission, and standard permit applications and issuances within each Corps regulatory district;
(2) Cost Analysis--an estimation of the direct costs the alternative program would impose on the Corps regulatory districts and permit applicants; and
(3) Time Analysis--an estimation of how the alternative program would affect the average evaluation days required to issue a standard permit.[1]

The methodology and data used for each section of the analysis and each alternative are presented below.

D.2 Permit Shift Analysis

D.2.1 Methodology

D.2.1.1 Baseline

The permit shift analysis was conducted for five alternatives relative to a baseline in which activities currently permitted as nationwide permits are assumed to require no permit at all.

Such a baseline allowed the Programmatic Environmental Impact Statement (PEIS) to compare how the different alternatives would process those activities currently authorized as nationwide permits (i.e., the No Action Alternative). Permit applications and issuances recorded in the fiscal year (FY) 1998 Quarterly Permit Data System Reports from Corps Headquarters are used to establish the workload for the baseline. In other words, the baseline assumes the number of nationwide permit applications and issuances to be, in effect, zero, while the volume of standard permit, letters of permission, and regional general permit applications and issuances are assumed to remain at FY 1998 levels.

[1] The average evaluation days serves as an indicator of both the processing efficiency of Corps regulatory offices and the indirect costs permit applicants would incur while waiting for a permit application to be processed.

The alternatives representing changes from the baseline are referred to as Alternatives A, A1, B, C, and D. The methodology and data used in each analysis are presented separately.

D.2.1.2 Alternatives

D.2.1.2.1 Alternative A (No Action Alternative)

Alternative A represents the FY 1996 nationwide permit program. The only effect Alternative A has on the baseline is the addition of nationwide permit applications and issuances. The volume of applications and issuances of the other permit types – standard permit, letters of permission, and regional general permit – are assumed to remain unchanged. Data from the FY 1998 Quarterly Reports were used to determine the nationwide permit workload at the national level.

D.2.1.2.2 Alternative A1[2] (Procedural and Threshold Variation of 1996 of No Action Alternative)

Alternative A1, which imposes procedural and threshold variations on the1996 Program (No Action Alternative) eliminates nationwide permit 26 and simultaneously issues five new nationwide permits and two new general conditions and modifies six existing nationwide permits and nine existing general conditions. This alternative represents the replacement nationwide permits issued in March 2000 (Federal Register, 2000). Nationwide permit limits and preconstruction notification requirements were reduced for many permits (e.g., reduced to 1/2 acre and 1/10 acre, respectively, for some replacement permits). The proposed changes affect only those permits authorized under Section 404 of the Clean Water Act.

An iterative methodology was used to estimate the effects of replacement package provisions on Section 404 permitting. The provisions considered in turn include: 1) the activity restrictions, impact limits, and reporting thresholds for the new and modified nationwide permits, and 2) the prohibitions and reporting thresholds imposed by general condition 26 (floodplains) and general condition 25 (designated critical resource waters).

Thirty-five districts provided permit-level data from the Corps Regulatory Analysis and Management System (RAMS) database for FY 1998.[3] Use of FY 1998 permitting data to model Alternative A1 assumes that the number and types of activities authorized under the program in that year are representative of those that will seek permit authorization in each year in which the alternative program would be in effect. The analysis also relied on the following simplifying assumptions:

1. Applicants whose activities qualify for a new or modified nationwide permit would choose to pursue that type of permit authorization rather than go through the standard permit process.

[2] Greater detail of the methodology used can be found in the Cost Analysis for the 2000 Issuance and Modification of Nationwide Permits (unpublished draft report), (IWR 2001) prepared by the Institute for Water Resources, U.S. Army Corps of Engineers, Alexandria, VA.

[3] Data for the Charleston and Honolulu districts were not available at the time of the study, and New England district does not utilize nationwide permits. Thus, these districts were not included in the analysis.

2. Applicants whose activities were previously authorized under nationwide permit 26 and would not qualify for any of the new or modified nationwide permits would instead apply for and receive standard permit authorization.
3. Applicants whose activities face a rebuttable presumption of more than minimal impact in order to qualify for a new or modified nationwide permit would successfully rebut the presumption and obtain authorization under the nationwide permit.

D.2.1.2.2.1 Reported NWP 26 Activities

Each FY 1998 nationwide permit 26 authorization was classified into one of fourteen activity categories. These categories were used to determine which replacement permit would accommodate each authorized activity. For each authorization, the activity restrictions and impact limits for the relevant new or modified nationwide permit were first used to determine whether that authorization would qualify for the nationwide permit, or instead require a standard permit. If the authorization qualified for a nationwide permit, the permit-specific reporting threshold was then used to determine whether or not that authorization would be required to submit a preconstruction notification.

Some nationwide permit 26 activities may qualify for nationwide permit authorization under the new nationwide permit 39 (Residential, Commercial, and Institutional Developments). The following nationwide permit 26 activities were counted as nationwide permit 39 activities: institutional, retail individual, retail multiple, residential multiple, industrial, single unit housing, and parking lots. Nationwide permit 39 has a 1/2-acre limit, as well as a 300 linear foot limit for excavating and filling streambeds. Agricultural activities authorized by nationwide permit 26 may qualify for authorization under the modified nationwide permit 40. Mining activities, including aggregate mining activities, that were authorized by nationwide permit 26 may be authorized by nationwide permit 44. Nationwide permit 43 may authorize the construction of stormwater management facilities that were previously authorized by nationwide permit 26. Recreational facilities that were authorized by nationwide permit 26 may be authorized by nationwide permit 42. These nationwide permits also have a 1/2-acre limit, and nationwide permits 40, 42 and 43 have a 300 linear foot limit for excavating and filling streambeds.

After estimating which nationwide permit 26 authorizations would shift to standard permits as a result of the 1/2-acre and 300 linear foot limits, and which nationwide permit 26 authorizations would shift to one of the new or modified replacement nationwide permits, general conditions 25 and 26 were imposed on the remaining nationwide permit activities. These are considered in turn below.

General condition 25 prohibits the use of 14 nationwide permits to authorize discharges of dredged or fill material into designated critical resource waters and wetlands adjacent to those waters. Critical resource waters are defined to include: U.S. National Oceanic and Atmospheric Administration (NOAA)-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed endangered and threatened species, coral reefs, and State natural heritage sites. Critical resource waters also include

outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance.

To estimate the number of nationwide permit 26 activities that would be affected by general condition 25, it was assumed that 1% of all jurisdictional waters of the United States represent designated critical resource waters, and a corresponding share of all FY 1998 nationwide permit 26 activities were located within these waters. This estimate was based on a review of available data on the different categories of critical resource waters and their potential intersection with activities authorized under the affected nationwide permits (see Cost Analysis for the 2000 Issuance and Modification of Nationwide Permits, Draft Report (IWR 2001) for a more complete explanation of the derivation of this estimate).

General condition 26 restricts the use of certain nationwide permits to authorize discharges of dredged or fill material into waters of the United States within 100-year floodplains identified through the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Maps or FEMA-approved local floodplain maps. Activities located *below* headwaters in mapped floodplains are prohibited from using the affected nationwide permits and must instead obtain standard permit authorization. Activities located *in* headwaters in mapped floodplains are also prohibited from using the affected nationwide permits if they occur in the designated *floodway*, defined as that part of the floodplain that carries most of the water during a 100-year storm event.

Assessment of the effects of the general condition 26 prohibitions on nationwide permit 26 activities relied on various data and assumptions on the amount of wetlands located in floodplains and total land area of floodplains and their floodways. This analysis found that mapped 100-year floodplains contain roughly 28% of all inland wetlands, and designated floodways less than 2% (see Cost Analysis Report, IWR 2001). It was then assumed that corresponding shares of activities reported to occur below and in headwaters, respectively, would be required to obtain standard permit authorization as a result of the general condition 26 prohibitions on nationwide permit authorizations in mapped 100-year floodplains.

D.2.1.2.2.2 Unreported Nationwide Permit 26 Activities

The modeling of permitting changes outlined above relied on RAMS data on FY 1998 nationwide permit 26 activities for which a preconstruction notification was submitted to the Corps. It is important to recognize that these data do not include potential other nationwide permit 26 activities that were not reported to the Corps because they involved impacts that were below the reporting threshold. The omission of unreported activities from the permitting change analysis is important to the extent that some of these would now incur regulatory costs under the Alternative A1. The reporting threshold for nationwide permit 26 defined in terms of impact size was 1/3 acre, at the time the FY 1998 data were collected, while the threshold for the set of replacement permits, that is, Alternative A1, is 1/10 acre. Therefore, any activities involving impacts between 1/10 and 1/3 acres that did not report to the Corps in FY 1998 would now be subject to reporting requirements under Alternative A1.

For the PEIS it was assumed that there would be no previously unreported nationwide permit 26 activities that would newly submit a preconstruction notification or standard permit application and thus incur regulatory costs as a result of implementation of Alternative A1. This is based on the hypothesis that members of the regulated community can be divided into two groups. One group includes entities that never report to the Corps and therefore do not incur regulatory costs. Members of this non-reporting group are assumed to be either unaware or unaffected by Section 404 regulations, and thus would not be expected to incur any regulatory costs as a result of the replacement package.

The other group includes entities that always report to the Corps when their activities possibly intersect with jurisdictional waters, even if they involve impacts that fall below the reporting threshold. Evidence for such "over-compliance" comes from the RAMS data used for this study, which suggests that nearly 75% of the nationwide permit 26 activities that were reported to the Corps in FY 1998 involved impacts to jurisdictional waters that were less that the 1/3-acre reporting threshold. Members of this reporting group likely include land developers and others whose business activities often require permit authorization under the Section 404 program. These entities might be expected to seek permit authorization even when not technically required to do so in order to eliminate uncertainty created by regulatory ambiguity. Many elements of the Section 404 program are not regulatory "bright lines" that make it straightforward to determine exactly what is and what is not required or authorized. For example, determining whether affected waters are in headwaters, whether a project will impact more than 1/3 acre of waters of the United States, or even whether affected waters are jurisdictional under the Corps regulatory program can all be clouded by uncertainty. Members of the reporting group are likely risk-averse and willing to buy insurance against such regulatory uncertainty (i.e., a verification letter from the Corps). The price of that insurance is the cost of submitting a preconstruction notification and complying with permit conditions. But Alternative A1 would not subject this segment of the regulated community to any added regulatory costs to the extent that all of their activities in jurisdictional waters were previously already being reported to the Corps.

Appendix C discusses both groups and estimates that the non-reporting group accounts for a relatively small amount of acres degraded.

D.2.1.2.2.3 Other Nationwide Permit Activities

The permitting change analysis also estimated the extent to which activities authorized in FY 1998 under each modified nationwide permit (i.e., nationwide permits 3, 7, 12, 14, 27, and 40) and a category of other existing nationwide permits would be affected by the nationwide permit replacement package (Alternative A1). For purposes of this analysis, nationwide permit 29 was also treated as a modified nationwide permit since its impact limit was reduced from 1/2 to 1/4 acre during the period when the new and modified nationwide permits were being developed to replace nationwide permit 26.[4] Permit shifts for activities authorized by the modified nationwide permits were calculated in the same fashion as nationwide permit 26 activities. That is, shifts due to acreage and linear foot impact limits were applied to the activities authorized in FY 1998,

[4] See *Federal Register* 1999, Volume 64, August 30, 1999.

and then the shifting factors for general conditions 25 and 26 were imposed on the remaining nationwide permit activities

D.2.1.2.3 Alternative B (Shift to Standard Permits)

Alternative B evaluates the effects of canceling the nationwide permit program and forcing all activities currently authorized by nationwide permit to require a standard permit. Data for FY 1998 from the regulatory Quarterly Permit Data System Report were used to determine the annual number of nationwide permits shifting into the standard permit pool for each district.[5] For this alternative, the number of activities shifting to standard permits was calculated from the number of nationwide permit activities that were verified by Corps district offices in FY 1998; nationwide permit activities that were not reported to the Corps in FY 1998 were not used to calculate shifts to standard permits. Each nationwide permit was assumed to be a standard permit under the same authority designation. That is, nationwide permits authorized by Section 404 of the Clean Water Act were assumed to have received a standard permit authorized by Section 404.

D.2.1.2.4 Alternative C (Shift to Letters of Permission)

Alternative C evaluates the effects of canceling nationwide permit program and forcing all activities currently authorized by nationwide permit to require a letter of permission. Data for FY 1998 from the Quarterly Permit Data System Report were used to determine the annual number of nationwide permits shifting into the letter of permission pool for each district. For this alternative, the number of activities shifting to letters of permission was calculated from the number of nationwide permit activities that were verified by Corps district offices in FY 1998; nationwide permit activities that were not reported to the Corps in FY 1998 were not used to calculate shifts to letters of permission. Each nationwide permit activity was assumed to be a letter of permission under the same authority designation. That is, nationwide permit activities authorized by Section 404 of the Clean Water Act were assumed to have received a letter of permission authorized by Section 404.

D.2.1.2.5 Alternative D (Shift to Regional General Permits)

Alternative D evaluates the effects of canceling the nationwide permit program and forcing all activities currently authorized by nationwide permit to require a regional general permit. Data for FY 1998 from the Quarterly Permit Data System Report were used to determine the annual number of nationwide permits shifting into the regional general permit pool for each district. Each nationwide permit was assumed to be a regional general permit under the same authority

[5] RAMS data were not used to evaluate Alternatives B, C, and D because each alternative canceled the nationwide permit program outright, causing all nationwide permit applications to seek standard permit, letters of permission, or regional general permits, respectively. As a result, the more detailed RAMS data – which are more cumbersome and costly to evaluate – were not needed to evaluate these alternatives. Alternative A1, in contrast, adjusted the impact thresholds associated with nationwide permits. As a result, impact data – available only from RAMS – were needed to assess the effects ofAlternative A1.

designation. That is, nationwide permits authorized by Section 404 of the Clean Water Act were assumed to have received a regional general authorized by Section 404.

D.2.2 Results

Table D.2.2-1 presents the results of the permit shift analysis for each alternative program. The numbers for Alternative A reflect the actual volume of applications received in FY 1998 for each permit type. The baseline numbers are identical to Alternative A except for the volume of nationwide permits – in the baseline, the nationwide permit program is assumed not to exist, and no alternative permit requirements are imposed on nationwide permit activities. Alternative A1 causes some nationwide permit activities to shift to the standard permit process, while others continue to be authorized by nationwide permit; Alternative B forces all of the nationwide permits into the standard permit process. The volume of letters of permission and regional general permits are unaffected by Alternatives A1, and B. In Alternative C, the 41,879 nationwide permits are forced into the letters of permission pool, leaving the volume of standard permits and regional general permits unaffected. Similarly, Alternative D forces all of the nationwide permits into the regional general permit process and assumes the volume of standard permits and letters of permission applications received remain at their FY 1998 level.

Table D.2.2-1. Estimated Applications Received per Year by Permit Type for Each Alternative

Alternative	NWP	SP	LOP	RGP
Baseline	0	4,855	2,719	40,404
A	41,879	4,855	2,719	40,404
A1	39,373	7,361	2,719	40,404
B	0	46,734	2,719	40,404
C	0	4,855	44,598	40,404
D	0	4,855	2,719	82,283

D.3. Time Analysis

D.3.1 Introduction

Each of the alternative permit programs evaluated by the PEIS has proposed modifying or eliminating the nationwide permit program. These modifications would result in changes in the permit workload faced by each Corps district. As the volume of permits changes, the efficiency with which each district is able to process each type of permit is likely to be affected. Changes in permitting efficiency have implications for both the Corps and permit applicants.

The methodology and analysis in this report focus on estimating the systemic effects of each PEIS alternative on the permit processing capabilities of each Corps regulatory district. That is,

the methodology provides a framework for predicting the effects of each PEIS alternative on the number of permits received, issued, withdrawn, denied (with and without prejudice), and pending over time, as well as the average evaluation days required to process a permit.

D.3.2 Methodology

D.3.2.1 Model Development

Four operational assumptions were employed to facilitate the analysis. First, it was assumed that Corps district regulatory branches are currently operating at full capacity. In other words, the number of labor hours expended in each district on permitting activities (PLH) is equal to the number of labor hours *available* for permitting activities. This assumption is represented by Equation 1. In the equations that follow, NWP refers to nationwide permits, SP refers to standard permits, LOP refers to letters of permission, and RGP refers to regional general permits.

(1) $PLH_{Avail, D, t} = \Sigma_P \Sigma_A PLH_{P, A, D, t} \quad \forall$ D and t

Where P = {NWP, RGP, LOP, SP}
A = {Section 10, Section 404, Sections 10/404, Sections 10/103}
D = {all Corps Districts}
t = time period
$PLH_{Avail, D, t}$ = number of labor hours available to district D for permitting during time period t
$PLH_{P, A, D, t}$ = number of labor hours dedicated to permits of type P under authority A in district D during time period t

Second, it was assumed that Corps district regulatory budgets would remain at current levels over time. In other words, each district's permitting resources (represented by $PLH_{D, t}$) are constant over time. This relationship is represented by Equation 2.

(2) $PLH_D = PLH_{D, t} = \Sigma_P \Sigma_A PLH_{P, A, D, t} \forall$ t

Third, it was assumed that Corps districts would not cut corners in permit evaluation in an effort to absorb the increased workload within current budget limits. Fourth, it was assumed that all nationwide permits and regional general permits were issued, denied, or withdrawn in the year in which they were received.

Each PEIS alternative will change each district's workload of one or more permit types – Alternatives A1 and B will increase the standard permit workload ($LOAD_{SP, A, D, t}$); Alternative C will increase the letters of permission workload ($LOAD_{LOP, A, D, t}$); and Alternative D will increase the regional general permit workload ($LOAD_{RGP, A, D, t}$). In addition to affecting workload, the movement of permit applications out of the nationwide permit program will free up resources previously dedicated to nationwide permitting activities. In other words, under each alternative some portion of $PLH_{NWP, A, D, t}$ will be freed up as the nationwide permit workload is either reduced or eliminated. It is assumed that the $PLH_{NWP, A, D, t}$ freed by the change in nationwide permit workload are transferred to the permit type and authority that is

absorbing the nationwide permit workload. For example, Alternative B requires all nationwide permit activities to be issued under standard permit. As a result, $LOAD_{SP, A, D, t}$ increases, and all of $PLH_{NWP, A, D, t}$ are transferred directly to $PLH_{SP, A, D, t}$. Likewise, in Alternative C, $LOAD_{LOP, A, D, t}$ increases and all $PLH_{NWP, A, D, t}$ are transferred directly to $PLH_{LOP, A, D, t}$.
A district's standard permit workload in a given time period, t, is defined as the number of standard permits received at the beginning of period t plus the number of standard permits carried over from the period t-1 minus the number of standard permits withdrawn during period t. This relationship is represented by equation 3.

(3) $LOAD_{P, A, D, t} = REC_{P, A, D, t} + CO_{P, A, D, t} - WD_{P, A, D, t} \quad \forall$ P, A, D, t

Where $REC_{P, A, D, t}$ = number of permits of type P received under authority A in district D during period t
$CO_{P, A, D, t}$ = number of permits of type P and authority A in district D carried over from period t-1
$WD_{P, A, D, t}$ = number of permits of type P and authority A in district D withdrawn during period t

The proportion of a district's permit workload that a district is able to issue in a given time period is a function of the district's permit workload and the number of labor hours the district dedicates to permitting, represented by Equation 4. By spreading resources more thinly, increases in permit workload would likely reduce the number of permits a district is able to issue in a given time period. Similarly, an increase in permitting resources (PLH) would likely increase the proportion of permits a district could issue, *ceteris paribus*. Equation 4 and Inequalities 4a and 4b describe the expected influence of permit workload and PLH on the number of permits issued by a district.

(4) $ISSUE_{P, A, D, t} / LOAD_{P, A, D, t} \equiv \text{Prop } ISSUE_{P, A, D, t} = f(LOAD_{P, A, D, t}, PLH_{P, A, D, t})$

Where $ISSUE_{P, A, D, t}$ = number of permits of type P issued under authority A in district D during time period t
Prop $ISSUE_{P, A, D, t}$ = proportion of permits issued of type P under authority A in district D during time period t
all other variables as defined above

(4a) $d(\text{Prop } ISSUE_{P, A, D, t}) / dLOAD_{P, A, D, t} < 0$

(4b) $d(\text{Prop } ISSUE_{P, A, D, t}) / dPLH_{P, A, D, t} > 0$

Identity 5 represents, for each district, in any time period t, the relationship between average evaluation days (AED) per permit issued and the total number of days dedicated to processing that type of permit.

(5) $AED_{P, A, D, t} \equiv TED_{P, A, D, t} / ISSUE_{P, A, D, t} \quad \forall$ P, A, D, t

Where $AED_{P, A, D, t}$ = average evaluation days to process permit type P under authority A in district D during time period t

$TED_{P, A, D, t}$ = total evaluation days elapsed while processing all permits of type P under authority A in district D during time period t
all other variables as defined above

Total evaluation days may also be expressed as a function of labor dedicated to permit processing (PLH), and other exogenous variables (Z) beyond the control of the district. Equation 6 represents the relationship between total evaluation days and these three variables.

(6) $TED_{P, A, D, t} = g(PLH_{P, A, D, t}, Z_t)$

Equations 4 and 6 allow average evaluation days to be written as a function of the district's workload, and the number of evaluation days the district dedicates to permitting. This relationship is expressed in Equation 7. Increases in permit workload would likely increase the average evaluation days required to process a permit, all other factors being equal. Similarly, increases in the number of days the district dedicates to permitting would likely decrease the average evaluation days required to process a permit. The expected relationship between AED, LOAD, and PLH is expressed in Inequalities 7a and 7b.[6]

(7) $AED_{P, A, D, t} = h(LOAD_{P, A, D, t}, PLH_{P, A, D, t})$

(7a) $dAED_{P, A, D, t} / dLOAD_{P, A, D, t} > 0$

(7b) $dAED_{P, A, D, t} / dPLH_{P, A, D, t} < 0$

By specifying and estimating Equations 4 and 6, the influence of permit shifts within each PEIS alternative on the number of permits issued and the average evaluation days per issued permit may be predicted, via the identity in equation 5, for any time period. These predictions allow the systemic effects of each alternative on each district's permitting capabilities to be traced through time.

D.3.2.2 Model Specification and Data

To estimate the impact of changes in permit workload and permitting resources on the number of permits issued and average evaluation days per permit, Equations 4 and 6 were specified as Equations 8 and 9, respectively. The parameters α, β, γ, and η are permitted to vary across permit types, authorities, and districts, but are assumed to be stable over time. In other words, the efficiency with which a district utilizes its permitting resources and adjusts to changes in permit workload is constant over time.

(8) $\ln(\text{Prop } ISSUE_{P, A, D, t}) = \gamma_{P, A, D} + \alpha_{P, A, D} * \ln(LOAD_{P, A, D, t}) + \beta_{P, A, D} * \ln(PLH_{P, A, D, t})$

(9) $TED_{P, A, D, t} = \eta_{P, A, D} * PLH_{P, A, D, t}$

[6] The composite variable, Z, represents all additional factors that may influence TED. These factors may include the proportion and/or number of controversial projects, the responsiveness of applicants and/or consultants to queries or public challenges, even weather-related delays in conducting public hearings. As such, no a priori expectations about the influence of the composite variable on AED are formulated.

Data for the Prop ISSUE, LOAD, and TED variables were from the Regulatory Quarterly Reports from FY 1996 through 1998. $LOAD_{P, A, D, t}$ was calculated using Equation (3).[7] While the values of REC, CO, and WD reported in the data set did differentiate between authority, they did not differentiate between LOP and SP applications. To create the necessary data, the ratio of issued letters of permission to issued standard permits was used to define the distribution of received, withdrawn and carryover applications between letters of permission and standard permits.[8]

Data for the PLH variable were developed using ISSUE and the results of an Institute for Water Resources Survey conducted in September 1999. In that survey, eight Corps districts estimated the average number of labor hours required to issue standard permits, nationwide permits, regional general permits, and letters of permission. The average labor hours reported by the responding districts was assigned to all districts that were not surveyed. Table D.3.3-1 in the results section presents the estimated labor hours required to issue each permit type in each responding district.

As the survey did not differentiate among authorities, it was assumed average labor hours did not vary across authorities. The calculation of PLH, measured in hours, is shown in Equation 10.

(10) $$PLH_{P, A, D, t} = ISSUE_{P, A, D, t} * HOUR_{P, D}$$

Where $HOUR_{P, D}$ = average number of labor hours required to issue permits of type P in district D
all other variables as defined above

To trace the effects across time periods (fiscal years), an accounting identity was exploited. Identity 11 represents the relationship between the number of permits pending at the end of time t, the number of permits received at the beginning of time t, the number of permits carrying over from time t-1, and the number of permits issued, withdrawn, and denied during time t.

(11) $$CO_{P, A, D, t+1} \equiv PEND_{P, A, D, t} = REC_{P, A, D, t} + CO_{P, A, D, t} - WD_{P, A, D, t} - ISSUE_{P, A, D, t} - DP_{P, A, D, t} - DWOP_{P, A, D, t}$$

For $P=\{LOP, SP\}$[9] and $\forall$ A, D, t

Where $PEND_{P, A, D, t}$ = number of permits of type P under authority A in district D pending at the end of time period t

[7] An implicit assumption in Equation 9 is that permits are withdrawn at the beginning of a time period. That is, permitting resources during time t are not dedicated to permits that are withdrawn in time t.

[8] For example, Buffalo in FY 1998 issued 30 standard permits and 24 letters of permission under Section 404. That same year, 160 Section 404 permit applications were received, 109 carried over from FY 1997, and 153 were withdrawn. It was, therefore, assumed that 89 standard permits were received, 61 standard permits were carried over from FY 1997, and 86 standard permits were withdrawn; the balance of each category were assumed to be letters of permission.

[9] It was assumed all nationwide permits and regional general permits were either issued or denied in the year they were received, i.e. no pending nationwide permits or regional general permits.

$DP_{P, A, D, t}$ = number of permits of type P under authority A
in district D denied with prejudice
during time period t

$DWOP_{P, A, D, t}$ = number of permits of type P under authority A
in district D denied without prejudice
during time period t
all other variables as defined above

The analysis uses FY 1998 as the base year. That is, the composition of the permit program in each district in FY 1998 is taken to represent the permit program in time t_0 of the analysis.[10] That is not to say that the analysis necessarily begins in FY 1998. Rather, the methodology assumes that the permit program in each district in the year prior to the institution of each PEIS alternative is accurately reflected by that district's permit program in FY 1998. This assumption fixes the values of each variable of Identity 11 in time t_0 to FY 1998 levels. For permit types that are not affected by the PEIS alternative being evaluated, these variables are assumed to remain fixed at the t_0 levels throughout the analysis.[11]

The number of withdrawn and denied permits in any given time period are taken to be a fixed proportion of the number of received and carryover permits for that year. The proportions are fixed at FY 1998 levels. These relationships are represented by Equations 12, 13 and 14.

(12) $WD_{P, A, D, t} = (REC_{P, A, D, t}+CO_{P, A, D, t})*WD_{P, A, D, 1998}/(REC_{P, A, D, 1998}+CO_{P, A, D, 1998})$

(13) $DP_{P, A, D, t} = (REC_{P, A, D, t}+CO_{P, A, D, t})*DP_{P, A, D, 1998}/(REC_{P, A, D, 1998}+CO_{P, A, D, 1998})$

(14) $DWOP_{P, A, D, t} = (REC_{P, A, D, t}+CO_{P, A, D, t})$
$*DWOP_{P, A, D, 1998}/(REC_{P, A, D, 1998}+CO_{P, A, D, 1998})$

When combined with the permit shift analysis, the methodology presented here can trace effects of each PEIS alternative on each district's permit workload into the future. It can also estimate the alternative's effect on the average evaluation days required to issue each permit type.

D.3.3 Results

Seven districts provided estimates of the labor hours required to process some or all of the various types of permits issued. The responses of the districts are presented in Table D.3.3-1.

The time analysis methodology presented above was followed for Alternatives B, C and D. Because only three districts provided estimates of the labor hours required to process a letter of permission, the affects of Alternative C on each district's permit program are assumed to be the same as the affects of Alternative B. In other words, the additional letter of permission a district

[10] The convention is adopted in which t_0 represents the baseline fiscal year of the analysis; t_1 represents the fiscal year following the baseline, i.e. t_0+1, etc.

[11] For example, Alternative B shifts all nationwide permits to standard permits. As a result, it is assumed that the values of all letter of permission and regional general permit variables remain at FY 1998 levels throughout the analysis.

is able to process under Alternative C is assumed to be the same as the additional standard permit the district can process under Alternative B. Table D.3.3-2 presents the estimated number of standard permit issued and the average evaluation days for each authority under Alternative B.

The results in Table D.3.3-2 suggest that, for all authorities, more standard permits would be issued under Alternative B than were issued in FY 1998. The number of Section 10 permits issued would increase nearly 60% in the first year of the program, and very slightly each year thereafter. Section 404 standard permit issuances would increase nearly four-fold under Alternative B, and Section 10-404 standard permit issuances would nearly double. The model further suggests the influx of Section 10 permitting labor would more than offset the workload increase, leading to a reduction in the average evaluation days under Alternative B. Section 404 and Section 10-404 permits, however, would realize an increase in average evaluation days between 6% and 20%, depending on the year.

Table D.3.3-1 Estimated Labor Hours to Process Permits by Type of Permit

District	Standard Permits	Letters of Permission	Nationwide Permit 26	Other Nationwide Permits	All Nationwide Permits[12]	Regional General Permits
Buffalo	30	6	6	6	6	6
Fort Worth	94	26	39	15	30	19
Omaha	40		9	6	8	8
Portland	40		8	8	8	6
Sacramento	80	16	24	12	20	12
St. Paul	90		8	3	6	
Others[13]	62.3				13	NA

Table D.3.3-2: National Estimates of Standard Permits Issued and Average Evaluation Days (AED) Over Time for Alternative B (Shift to Standard Permits)

	t_0	t_1	t_2	t_3	t_4	t_5
Issue Section 10	864	1324	1326	1328	1328	1329
Issue Section 404	2349	8205	8039	7969	7923	7896
Issue Sections10-404	1579	3051	3027	3012	3002	2994
AED Section 10	75.6	66.2	66.1	66	66	66
AED Section 404	101.6	114.5	116.8	117.8	118.5	118.9
AED Sections 10-404	105.8	111.9	112.7	113.3	113.7	114

[12] Because the regulatory data used for this analysis did not differentiate nationwide permits by their permit number, a weighted average of the nationwide permit 26 and other nationwide permit labor hours was used. More weight was placed on nationwide permit 26 because more nationwide permit 26 verifications are issued than for any other nationwide permit.

[13] The average of the responses was used for all districts that did not provide labor hour estimates.

In Alternative D, each district was assumed to process all regional general permits in the year in which they were received. This assumption is based on the fact that for each district that provided labor estimates for processing permits, the weighted average for nationwide permits was greater than the estimate for processing regional general permits. Therefore, it is assumed that the additional labor released from nationwide permit processing would be able to process the permits as regional general permits.

Alternatives A and A1 assume the volume of permits received, withdrawn, and processed by each district will be the same in successive years as in the first year of the program.[14]

D.4 Cost Analysis

D.4.1 Introduction

Cost analyses were conducted for each PEIS Alternative. Three types of out-of-pocket costs were considered: fixed costs to the Corps, variable costs to the Corps, and direct compliance costs to permit applicants. These analyses were done at the district, division, and national level. The methodology used to evaluate the potential costs associated with each alternative is presented below.

D.4.2 Methodology

D.4.2.1 Estimating Fixed and Variable Costs to the Corps

The processing of individual permits may be partitioned into two elements: the cost of receiving the application, and the cost of issuing the final permit. The relationship between a district's budget and the cost of issuing a nationwide permit, issuing a regional general permit, receiving a standard permit/letter of permission application, and issuing a standard permit/letter of permission is represented by Equation 1. The more refined estimates allow us to attribute different costs to permits that enter the backlog and permits that are issued.

(1) $$\text{Annual Permit Budget}_D = \beta_0 + \beta_1 * \text{SP-LOP-RGP DUM}_D + \beta_2 * \text{SP-LOP}_D + \beta_3 * \text{NWP}_D + \beta_4 * \text{RGP}_D + \beta_5 * \text{REC}$$

Where Subscript D refers to the district
Annual Permit Budget = annual amount spent on permitting
β_0 refers to the intercept
β_1, β_2, β_3, β_4, and β_5 refer to coefficients (costs) for respective permit variables
SP-LOP-RGP DUM = 1 if the district processed more SP+LOP than NWP and more RGP than NWP, 0 otherwise
SP-LOP = number of standard individual permits plus the number

[14]Alternatives A and A1 were evaluated in the Cost Analysis for the 2000 Issuance and Modification of the Nationwide Permits, Unpublished Draft Report (IWR 2001).

of letters of permission issued per year
NWP = number of nationwide permits issued per year
RGP = number of regional general permits issued per year
REC = number of SP+LOP received but not issued per year

Equation 1 was estimated by ordinary least squares. The results are presented in Table D.4.2-.1.

The intercept and dummy variable (SP-LOP-RGP DUM) represent fixed costs to the district.[15] That is, they represent costs the district incurs to administer its permit program irrespective of the volume of permits it handles. The dummy variable indicates that districts that rely on permits other than the nationwide permits incur nearly $1.2 million per year more in fixed costs than districts that rely more heavily on the nationwide permit program. By modifying or eliminating the nationwide permits, the alternatives considered in the PEIS force many districts to incur these additional fixed costs.

Table D. 4.2-1: Estimated Coefficients for Equation 1

N = 37	**R^2 = 0.71**	**Adj. R^2 = 0.66**	**F-Stat = 15.1**
Independent Variable	Estimated Coefficient	Standard Error	P-Value
Intercept	8420010	181092	5.85E-05
SP-LOP-RGP DUM	1179683	410203	0.007225
SP-LOP	1492	584	0.015815
NWP	389	112	0.001532
RGP	206	76	0.010973
REC	1077	621	0.093024

The other variables in equation 1 represent the variable costs of issuing and/or receiving the various types of permits. That is, they represent the costs per permit. For example, the estimated coefficient for the SP-LOP variable may be interpreted as costing each district approximately $1,491 to issue a standard permit or letter of permission; the cost to the district of receiving a standard permit or letter of permission application is estimated to be $1,077; whereas the cost of receiving and issuing a nationwide permit or regional general permit application is estimated to be $389 and $206, respectively.

D.4.2.2 Estimating the Fixed Costs of Permit Development

In addition to the annual fixed costs of administering a permit program, PEIS Alternatives C and D would impose one-time permit development costs on each district. Activities that are

[15] Dummy variables are used to shift the intercept of the linear regression for different classifications within the data. Here, we are modeling administrative costs as a linear function of the type and number of permits a district processes. SP-LOP-RGP DUM partitions the data into two classifications (as explained above), allowing the intercept of the estimated function to vary across these classifications, while requiring the slope to be the same.

currently authorized by nationwide permits are not generally covered by existing letters of permission and regional general permits. As a result, if the nationwide permit program were eliminated as in Alternative C (D), each district would need to develop a letter of permission (regional general permit) to be able to authorize current nationwide permit activities. Five Corps regulatory districts – St. Paul, Jacksonville, Fort Worth, New England and Portland – provided estimates of the Corps cost of developing a letter of permission, regional general permit, and state programmatic general permit to cover the current nationwide permit workload. Table D.4.2-2 presents the estimates provided by each district. The cost to develop a state programmatic general permit is provided for comparison purposes only. A state programmatic general permit alternative was not examined in detail.

Table D.4.2-2. Estimated Permit Development Costs

District	Regional General Permit	Letter of Permission	Complex Letter of Permission	State Programmatic General Permit
Fort Worth	$5,000-15,000	$15,000		
St. Paul	Spent $220,000 on 3 RGP, 6 LOP, and 2 SPGP			
Jacksonville	$20,000	$80,000	$120,000	
Portland	$5,000	$5,000		
New England				$50,000

D.4.2.3 Direct Costs to Permit Applicants

Direct costs to permit applicants (or direct compliance costs) reflect the out-of-pocket expenses necessary to complete permit applications and comply with permit conditions, including required compensatory mitigation. The analysis of incremental direct costs corresponding to permitting changes focused on estimating the differences in unit compliance costs among affected permits. This required characterizing costs for activities authorized under different permit types. This was accomplished using data and information gathered in informal interviews with wetland permitting consultants and Corps district regulatory staff based around the country.

Table D.4.2-3 identifies the major requirements and associated direct costs for different permit types developed based on what was learned from the interviews conducted for this study. Specifically, it outlines permit requirements and costs for a reporting nationwide permit preconstruction notification, a Section 10 letter of permission, Section 404 letter of permission, and a standard permit application for a "typical" project affecting up to three acres of waters of the United States. The last row of the table presents estimated total direct costs for each permit type. These permit-specific costs were used to estimate changes in unit costs corresponding to each type of estimated permitting change.

Table D.4.2-4 presents the estimates of direct costs to permit applicants for the five permitting changes estimated for this analysis. Two considerations affect some of these estimates. The first relates to miscellaneous new procedural requirements imposed by certain replacement permits

and general conditions associated with Alternative A1, which is the new and modified nationwide replacement package issued in March 2000.[16] These new procedures would likely increase costs for a typical nationwide permit preconstruction notification. However, assessment of the total compliance costs they would impose is complicated by the difficulty in identifying affected activities. Further, in aggregate these added costs would likely be much less that the costs associated with activities moving to standard permits, or now requiring a preconstruction notification for the first time. For these reasons, these "process" costs were not estimated for this analysis. The study instead proceeded under the assumption that unit direct costs for Alternative A1 equal the estimated costs for a typical nationwide permit 26 pre-construction notification, as reported in Table D.4.2-4.

The second consideration relates to the costs of implementing compensatory mitigation required by permit conditions. The cost analysis proceeded under the assumption that Alternative A1 (Procedure and Threshold Variations as per the nationwide permit replacement package issued in 2000) would not impose mitigation requirements and costs beyond those that are already being imposed by the current program. This assumption seems reasonable in the case of nationwide permit activities, for which the Corps has been emphasizing mitigation since 1996. Nevertheless, some of the alternatives examined here would impose at least some new compensatory mitigation requirements and costs for activities shifting from nationwide permit 26 or other nationwide permits to standard permits.

D.4.3 Cost Results

Results from equation 1, together with results of the permit shift and time analyses, were used to estimate the baseline fixed and variable costs to the Corps. To determine the variable costs, the number of standard permits, letters of permission, and regional general permits received (Table D.2.2-1 of the Permit Shift Analysis) and issued (Table D.3.3-2 of the Time Analysis) were multiplied by the appropriate coefficient in Table D.4.2-1 and summed across all districts.[17]

Fixed costs for each district were assumed to be the same level in the baseline as in Alternative A. In other words, every district faced the $842,010 in fixed costs, but only those that relied more on standard permits, letters of permission, and regional general permits under Alternative A, thereby increasing their fixed costs by an additional $1,179,683 per year, were assumed to face the same additional fixed costs under the baseline. Under Alternative A1, only those districts that became more reliant on standard permits, letters of permission, and regional general permits than nationwide permits incurred the additional fixed costs. Under Alternatives B, C, and D, because all districts were forced to absorb the nationwide permit workload into their other permit programs, all districts incurred the additional fixed costs.

For each alternative, the variable permit costs were estimated by multiplying the number of applications received and issued of each permit type by the appropriate coefficient in Table

[16] For example, the nationwide permit replacement package general condition 9 (water quality) requires the development of water quality management plans for activities authorized under the set of replacement permits.
[17] For the baseline, all regional general permits and nationwide permits received were assumed to be issued. The standard permits and letters of permission issued were assumed to be the same as FY 1998 levels.

D.4.2-1. Alternatives C and D also faced one-time permit development costs – costs incurred only in the first year of the program. The estimated total administrative costs to the Corps in the first year of each alternative are presented in Table D.4.3-1. Each component of total costs is also presented. Tables D.4.3-2 and D.4.3-3 present estimates of the administrative costs over the first five years and the estimated annual direct compliance for each alternative, respectively.

The baseline reflects the estimated costs of not regulating activities authorized under nationwide permits in FY 1998. By subtracting baseline costs from the costs under a given alternative, the costs of the regulations covering the nationwide activities can be estimated for each alternative. These costs over-and-above the baseline are reflected in Figures D.4.3-1 and D.4.3-2.

Table D.4.2-3. Estimated Current Direct Costs to Permit Applicants (Excluding Costs of Compensatory Mitigation)

Application Component	Reporting Nationwide Permits	Section 10 Letters of Permission Costs	Section 404 Letters of Permission Costs	Standard Permit
Delineation and survey of special aquatic sites	$2,000-3,000 for a 10-20 acre project site. Cost depends on project area and the total length of impact areas. Engineering survey of impact area would add cost	Not applicable	$2,000-3,000 for a 10-20 acre project site. Cost depends on project area and the total length of impact areas. Engineering survey of impact area would add cost	$2,000-3,000 for a 10-20 acre project site. Cost depends on project site area and length of impact areas. Engineering survey of impact areas (if required) would impose added costs
Project/ Impact Drawings	$500-3,000 for detailed plan views and cross sections (Cost depends on number of separate impact areas)	$500-$3000 Dredging Projects need to include cyds of material, channel depth, location of project, etc. (Piers and other structures may be less)	$2,000-3,000 for detailed plan views and cross sections (Cost depends on number of separate impact areas)	$2,000-3,000 for detailed plan views and cross sections (Cost depends on number of separate impact areas)
Alternatives Analysis	Discussion of on-site alternatives, e.g. site layout designs and engineering opportunities to avoid and minimize impacts	Not applicable but navigation issues would have to be addressed.	$500-1500 depending on whether a cursory off-site alternatives analysis is sufficient.	$3,000 and up depending on whether a cursory off-site alternatives analysis is sufficient (low end of cost range) or not
Mitigation Proposal	$3000- 4,000 for conceptual on-site mitigation plan if requirement can not be met with measures that do not require design plans	Not applicable	$3,000-4,000 for conceptual on-site mitigation plan if requirement can not be met with measures that do not require design plans	$3,000-4,000 for conceptual on-site mitigation plan if other mitigation options (e.g. in lieu fee or banking) are not available or allowable
Application Submission	$1,000-4,000 to complete application that includes all notification requirements	$1,000-2,000 to complete abbreviated application that includes all notification requirements	$2,000-4,000 to complete application that includes all notification requirements	$2,000-6,000 to complete application that includes all requirements
Total Permit Cost for a Typical Project*	$1,000 – 10,000 *	$1,000 - 5,000	$8,000- $14,000	$12,000 – 24,000

* The total permit cost for a typical project authorized by nationwide permit 26 is estimated to range between $3000 and $1000 with a resultant higher estimated mid-point, $6500 versus $5500 for all nationwide permits. This estimate was developed as part of the Cost Analysis for the 2000 Issuance and Modification of Nationwide Permits (unpublished draft report) (Institute for Water Resources 2001).

Table D.4.2-4. Estimated Incremental Direct Costs to Permit Applicants Corresponding to Permitting Changes

Permitting Change	Unit Change in Compliance Cost	Basis for Unit Change in Direct Compliance Cost
Reported nationwide permit preconstruction notification (PCN) activity shifting to new/modified nationwide PCN (Alternative A1)	Not estimated (assume no change)	Alternative A1 (Procedural and Threshold Variations) has new and modified nationwide permits and general conditions that would impose miscellaneous new procedural requirement that likely would increase average PCN costs somewhat. These added costs were not estimated; instead, the cost analysis assumes that PCN costs for Alternative A1 new and modified NWPs mirror those for previous NWP 26 PCN.
Reported NWP 26 (PCN) activity shifting to standard permits (Alternative A1)	+11,500	Difference between the mid-point estimated cost range for a reported NWP 26 shifting to a standard permit.
Reported nationwide (PCN) activity shifting to standard permits (Alternative B)	+12,500	Difference between the mid-point estimated cost range for a reported nationwide shifting to a standard permit.
Reported nationwide permit activity shifting to Section 404 letters of permission (Alternative C)	+5,500	Difference between mid-point estimated cost range for a reported nationwide permit to a Section 404 letter of permission
Reported nationwide permit activity shifting to Section 10 letters of permission (Alternative C)	-2,500	Difference between mid-point estimated cost range for a reporting nationwide permit to a Section 10 letter of permission
Reported nationwide permit (PCN) activity shifting to regional general permits (Alternative D)	Not estimated (assume no change)	Assume cost for reporting nationwide permit (PCN) mirrors cost for reporting regional general permit.

D.4.3 Cost Results

The results from equation 1, together with the results of the permit shift and time analyses, were used to estimate the baseline fixed and variable costs to the Corps. To determine the variable costs, the number of standard permits, letters of permission, and regional general permits received (Table D2.2-1 of the Permit Shift Analysis) and issued (Table D.3.3-2 of the Time Analysis) were multiplied by the appropriate coefficient in Table D.4.2-1 and summed across all districts.[18]

Fixed costs for each district were assumed to be the same level in the baseline as in Alternative A. In other words, every district faced the $842,010 in fixed costs, but only those that relied

[18] For the baseline, all regional general permits and nationwide permits received were assumed to be issued. The standard permits and letters of permission issued were assumed to be the same as FY 1998 levels.

more on standard permits, letters of permission, and regional general permits under Alternative A, thereby increasing their fixed costs by an additional $1,179,683 per year, were assumed to face the same additional fixed costs under the baseline. Under Alternative A1, only those districts that became more reliant on standard permits, letters of permission, and regional general permits than nationwide permits incurred the additional fixed costs. Under Alternatives B, C, and D, because all districts were forced to absorb the nationwide permit workload into their other permit programs, all districts incurred the additional fixed costs.

For each alternative, the variable permit costs were estimated by multiplying the number of applications received and issued of each permit type by the appropriate coefficient in Table D.4.2-1. Alternatives C and D also faced one-time permit development costs – costs incurred only in the first year of the program. The estimated total administrative costs to the Corps in the first year of each alternative are presented in Table D.4.3-1. Each component of total costs is also presented. Tables D.4.3-2 and D.4.3-3 present estimates of the administrative costs over the first five years and the estimated annual direct compliance for each alternative, respectively.

The baseline reflects the estimated costs of eliminating regulations on activities authorized under nationwide permits in FY 1998. By subtracting baseline costs from the costs under a given alternative, the costs of the regulations covering the nationwide activities can be estimated for each alternative. These costs over-and-above the baseline are reflected in Figures D.4.3-1 and D.4.3-2.

Table D.4.3-1: Estimated First-Year Administrative Costs to the Corps for Each Alternative (million $)

Alternative	Annual Total Fixed Costs	One-Time Permit Development Costs	Variable Permit Costs	Total Corps Costs	Incremental Corps Cost
Baseline	$35.5	0	$25.1	$60.7	--
No Action	$35.5	0	$41.4	$77.0	$16.3
Procedure and Threshold Variation	$36.7	0	$46.8	$83.6	$22.9
Shift to Standard Permits	$76.8	0	$81.9	$158.7	$98
Shift to Letters of Permission	$76.8	$4.6	$81.9	$163.3	$102.6
Shift to Regional General Permits	$76.8	$1.9	$33.8	$112.5	$51.8

Table D.4.3-2. Estimated Administrative Costs to the Corps over Five Years for Each Alternative (million $)

Alternative	Annual Total Fixed Costs	One-Time Permit Development Costs	Variable Permit Costs	Total Corps Costs	Incremental Corps Costs
Baseline	$177.5	0	$125.5	$303.3	--
No Action	$177.5	0	$207	$384.8	81.5
Procedure and Threshold Variation	$183.4	0	$234.3	$418.0	$114.7
Shift to Standard Permits	$384	0	$407.8	$791.8	488.5
Shift to Letters of Permission	$384	$4.6	$362.9	$751.5	448.2
Shift to Regional General Permits	$384	$1.9	$169	$554.9	251.6

Table D.4.3-3. Annual Direct Costs to Applicant by Permit Type and Alternative (million $)

Alternative	Standard Permit	Sec. 404 Letters of Permission	Sec. 10 Letters of Permission	Regional General Permits	Nationwide Permits	Total	Incremental Costs
Baseline	$146.27	$17.60	$8.85	$222.22	$0	$394.93	--
No Action	$146.27	$17.60	$8.85	$222.22	$232.84	$627.78	233
Procedure and Threshold Variation	$191.38	$17.60	$8.85	$222.22	$216.55	$656.60	262
Shift to Standard Permits	900.08	$17.60	$8.85	$222.22	$0	$1,148.75	754
Shift to Letters of Permission	$146.27	$453.11	$15.71	$222.22	$0	$837.30	293
Shift to Regional General Permits	$146.27	$17.60	$8.85	$452.56	$0	$625.26	230

D.4.3.1 Discussion

The results suggest that while some of the PEIS alternatives would impose significant increases in administrative costs on the Corps, the real cost impacts of changes to the nationwide permit program would be borne by the regulated community in the form of higher direct compliance costs. Of the PEIS Alternatives included in this analysis, the regulations in effect in 1998, represented by Alternative A, are the least costly in terms of both Corps administrative costs and direct compliance costs. Direct compliance costs are the same under Alternative D as Alternative A, but administrative costs to the Corps are higher due to increased fixed costs and the one time permit development costs. Alternative A1 imposes significantly higher direct compliance costs, but relatively small administrative costs compared to Alternative A. Forcing all of nationwide permit applications into the standard permit process, as in Alternative B, would cost an additional $523 million per year in direct compliance costs than the regulations in effect in 1998.

Figure D.4.3-1. Total Cost Above Baseline for Each Alternative in First Year

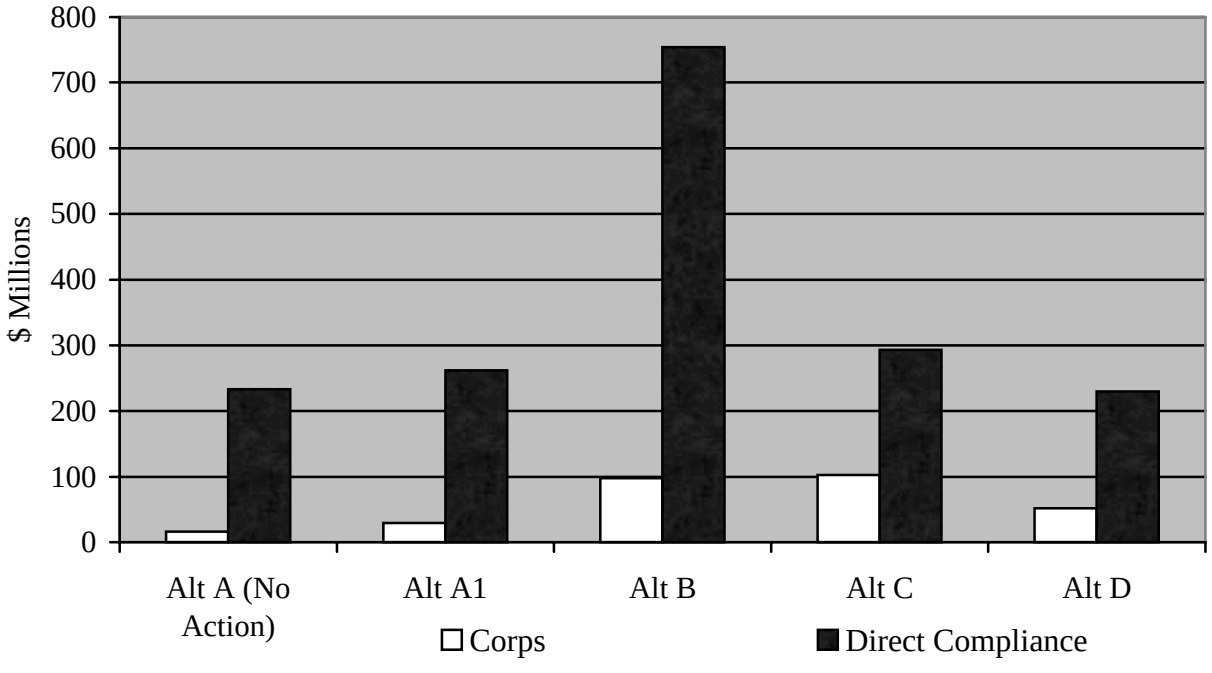

Figure D.4.3-2. Total Cost Above Baseline for Each Alternative in First Five Years